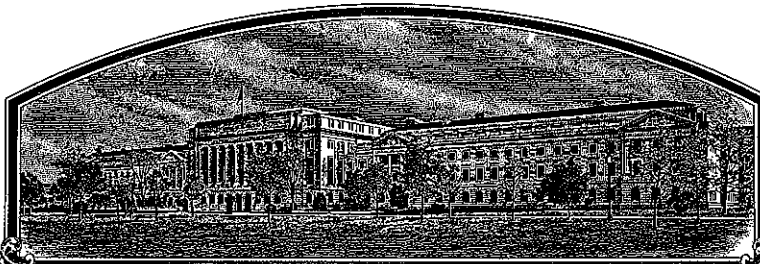


No.

200700415



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

*Monsanto Company*

*Whereas*, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'D4523081'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifteenth day of April, in the year two thousand and eight.*

*Attest:*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

Secretary of Agriculture

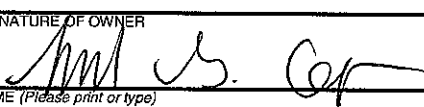


U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER <b>Monsanto Technology L.L.C</b>		2. TEMPORARY DESIGNATION OR -----		3. VARIETY NAME <b>D4523081</b>	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>800 N Lindbergh Blvd, E2SD St. Louis, MO 63167</b>		5. TELEPHONE (Include area code)		<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER <b>#200700415</b> FILING DATE <b>8/20/2007</b>	
		6. FAX (include area code)			
7. IF THE OWNER AMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>Limited Liability Company</b>		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <b>Susannah Cooper 800 N Lindbergh Blvd, E2SD St. Louis, MO 63167</b>				F E E S R E C E I V E D FILING AND EXAMINATION FEES: \$ <b>4382.00</b> DATE <b>8/20/2007</b> CERTIFICATION FEE: \$ <b>768.00</b> DATE <b>3/20/08</b>	
11. TELEPHONE (Include area code) <b>314.694.2718</b>		12. FAX (Include area code) <b>314.694.4888</b>		13. E-MAIL <b>susannah.g.cooper@monsanto.com</b>	
14. CROP KIND (Common Name) <b>Soybean</b>		16. FAMILY NAME (Botanical) <b>Fabaceae (Leguminosae)</b>		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP <b>Glycine max (L.) Merr.</b>		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23)	
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNEE REFERENCE NUMBER. (Please use space indicated on reverse.)	
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) <b>Susannah Cooper</b>		NAME (Please print or type)			
CAPACITY OR TITLE <b>Patent Scientist</b>		DATE <b>August 17, 2007</b>		CAPACITY OR TITLE DATE	

(see reverse for instructions and information collection burden statement)

**GENERAL INSTRUCTIONS:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (*See Section 97.6 of the Regulations and Rules of Practice*). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (*See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.*)

**Plant Variety Protection Office**  
**Telephone:** (301) 504-5518 **FAX:** (301) 504-5291  
**General E-mail:** PVPOmail@usda.gov  
**Homepage:** <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

#### **SPECIFIC INSTRUCTIONS:**

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. <http://www.ams.usda.gov/lsg/seed.htm>.

#### **ITEM**

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
  - (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (*See Regulations and Rules of Practice, Section 97.103.*)
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

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**22. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

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**23. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

---

**24. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)  
US patent application No. 11/769,892

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

**Exhibit A**  
**Origin and Breeding History**

**Parentage:** A3525/CSR3922N

**Table 1: Breeding History**

<b>Generation</b>	<b>Year</b>	<b>Description</b>
Cross	May-02	The cross was made at Bloomington, IL.
F <sub>1</sub>	Oct-02	Plants were grown at Kihei, HI and advanced using single plant selection.
F <sub>2</sub>	Feb-03	Plants were grown at Kihei, HI and advanced using bulk.
F <sub>3</sub>	May-03	Bulk populations were grown at Bloomington, IL and advanced using single plant selection.
F <sub>4</sub>	Nov-03	F <sub>3</sub> derived F <sub>4</sub> were grown at Chile in progeny row yield trial and the variety D4523081 was selected based on the agronomic characteristics, including, but not limited to, general plant health, lodging, early emergence, and general disease resistance, including PRR, SCN, BSR, SDS, stem canker, etc.
F <sub>5</sub>	2004	Yield tests were conducted at 13 locations.

Variety D4523081 was observed to be uniform and stable for the characteristics described within this application based on our observations since Nov-03 and, henceforth, to present. No variants were observed during this time.

Variety D4523081 has continued to be grown in yield tests for comparison against other varieties to determine how it would be used in our marketing program (Table 2).

**Table 2: Yield trials**

<b>Year</b>	<b>Number of Locations</b>
2005	26
2006	38

**Exhibit B**  
**Statement of Distinctness of**

**D4523081**

To our knowledge, the soybean varieties that most resembles D4523081 is DKB38-52.  
D4523081 and DKB38-52 differ in the following traits:

Trait	D4523081	DKB38-52
Flower Color	Purple	White
Hilum Color	Imperfect Black	Buff
Pod Color	Brown	Tan

According to the Paperwork reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE  
C  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

EXHIBIT

OBJECTIVE DESCRIPTION OF VARIETY  
Soybean (*Glycine max* (L.) Merr.)

NAME OF APPLICANT (S) Monsanto Company	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME D4523081
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) Attn: Susannah Cooper 800 North Lindbergh Blvd. Mail Zone: E2SD St. Louis, MO 63167		FOR OFFICIAL USE ONLY PVP NUMBER #200700415

## PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the spaces below.

Place a zero in the first box (e.g.    or   ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society of any recognized color standard may be used to determine plant colors; designate system used \_\_\_\_\_. Please answer all questions for your variety; lack of response may delay progress of your application.

## A. MORPHOLOGY:

Seed Shape:

- |  |   |
|--|---|
| <input type="text" value="2"/> 1 = Spherical<br>(L/W, L/T, and T/W ratios $\leq 1.2$ )       | <input type="text" value="2"/> 2 = Spherical-Flattened<br>(L/W ratios $> 1.2$ ; L/T ratios $\leq 1.2$ )   |
| <input type="text" value="3"/> 3 = Elongate<br>(L/W ratios $> 1.2$ ; T/W ratios $\leq 1.2$ ) | <input type="text" value="4"/> 4 = Elongate-Flattened<br>(L/T ratios $\geq 1.2$ ; L/W ratios $\geq 1.2$ ) |



Seed Coat Color:

- \*  1 = Yellow    2 = Green    3 = Brown    4 = Black    5 = Other (Please specify) \_\_\_\_\_

Seed Coat Luster:

- 1 = Dull    2 = Shiny

Seed Size:

- \*  13.6 grams/100 seeds (rounded to the nearest decimal (00.0))

Hilum Color:

- \*  5 = Buff    2 = Yellow    3 = Brown    4 = Gray    5 = Imperfect Black    6 = Black  
7 = Other (Please specify) \_\_\_\_\_

**A. MORPHOLOGY:** (continued)

Cotyledon Color:

\* ☐ 1 = Yellow      2 = Green

Seed Protein Peroxidase Activity:

\* ☐ 0 1 = Low      2 = High

Hypocotyl Color:

\* ☐ 3 1 = Green      2 = Green with Bronze      3 = Light Purple      4 = Dark Purple extending to  
                  ('Evans' or 'Davis')      Band below cotyledons      below Cotyledons      unifoliolate leaves ('Hodgson',  
                  ('Woodworth' or 'Tracy')      ('Beeson' or 'Pickett 71')      'Coker', or 'Hampton 266A')

Leaf Shape:

☐ 3 1 = Lanceolate      2 = Oval      3 = Ovate      4 = Other (Please specify) \_\_\_\_\_

Flower Color:

\* ☐ 2 1 = White      2 = Purple      3 = White with a Purple Throat

Pod Color:

\* ☐ 2 1 = Tan      2 = Brown      3 = Black

Pubescence Color:

\* ☐ 1 1 = Gray      2 = Brown (Tawny)      3 = Light Tawny

Plant Habit:

\* ☐ 3 1 = Determinate      2 = Semi-determinate      3 = Indeterminate      4 = Intermediate

Maturity Group:

\* ☐ 6 1 = 000      2 = 00      3 = 0      4 = I      5 = II  
                  6 = III      7 = IV      8 = V      9 = VI      10 = VII  
                  11 = VIII      12 = I      13 = X      14 = XI      15 = XII

Maturity Subgroup:

\* ☐ 8 Please enter a value from 0-9**B. DISEASE REACTIONS:** 0 = Not Tested      1 = Susceptible      2 = Resistant      3 = Tolerant

**NOTE:** Failure to supply information for at least 5 of the following disease reactions will result in significant delay in the examination process. Items denoted by and asterisk are the disease reactions most useful in the examination process.

**Bacterial**

- \* ☐ 0 Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)  
 \* ☐ 0 Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)  
 \* ☐ 0 Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

**Fungal**

- \* ☐ 0 Brown Spot (*Septoria glycines* Hemmi)  
 \* ☐ 0 Frogeye Leaf Spot (*Cercospora sojina* Hara)  
☐ 0 race 1      ☐ 0 race 3      ☐ 0 race 5      ☐ 0 race 7  
☐ 0 race 2      ☐ 0 race 4      ☐ 0 race 6      ☐ 0 Important: Any other races tested (Please specify) \_\_\_\_\_

**B. DISEASE REACTIONS:** (continued)

- ☐ Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)
- ☐ Downy Mildew (*Peronospora trifoliorum* var. *manchurica* (Naum.) Syd. Ex Gäum)
- ☐ Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)
- ☒ Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)
- \* ☒ Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *caulivora* Athow & Caldwell)
- \* ☐ Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) (Sacc. var. *sojae* (Lehman) Wehm.)
- ☐ Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)
- ☐ Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)
- ☐ Asian Soybean Rust (*Phakospora pachyrhizi* Sydow. (a.k.a. *Phakospora pachyrhizii* Sydow.))
- ☐ Other rust (Please specify) \_\_\_\_\_

Specify the gene(s) coding for reaction to Phytophthora Root Rot.

- |  |   |  |  |   |  |
|--|---|--|--|---|--|
| <input type="checkbox"/> <i>Rps1</i><br>(Williams) | <input checked="" type="checkbox"/> <i>Rps1-c</i><br>(Arksoy) | <input type="checkbox"/> <i>Rps1-k</i><br>(Kingwa)     | <input type="checkbox"/> <i>Rps3-b</i><br>(PI 172.901) | <input type="checkbox"/> <i>Rps5</i><br>(PI 91.160) | <input type="checkbox"/> <i>Rps?</i><br>(Nezumisaya, OX939, OX940) |
| <input type="checkbox"/> <i>Rps1-a</i><br>(Mukden) | <input type="checkbox"/> <i>Rps1-d</i><br>(PI 103.091)        | <input type="checkbox"/> <i>Rps2</i><br>(CNS)          | <input type="checkbox"/> <i>Rps3-c</i><br>(PI 340.046) | <input type="checkbox"/> <i>Rps6</i><br>(Altona)    |  |
| <input type="checkbox"/> <i>Rps1-b</i><br>(Sanga)  | <input type="checkbox"/> <i>Rps1-e</i><br>(PI 172.907)        | <input type="checkbox"/> <i>Rps3-a</i><br>(PI 171.442) | <input type="checkbox"/> <i>Rps4</i><br>(PI 86.050)    | <input type="checkbox"/> <i>Rps7</i><br>(Harosoy)   |  |

\*Phytophthora Root Rot (*Phytophthora sojae* (Kaufmann & Gerdemann))

- |  |                                  |                                  |   |                                  |                                  |
|--|----------------------------------|----------------------------------|---|----------------------------------|----------------------------------|
| <input checked="" type="checkbox"/> race 1 | <input type="checkbox"/> race 9  | <input type="checkbox"/> race 17 | <input type="checkbox"/> race 25  | <input type="checkbox"/> race 32 | <input type="checkbox"/> race 39 |
| <input type="checkbox"/> race 2            | <input type="checkbox"/> race 10 | <input type="checkbox"/> race 18 | <input type="checkbox"/> race 26  | <input type="checkbox"/> race 33 | <input type="checkbox"/> race 40 |
| <input checked="" type="checkbox"/> race 3 | <input type="checkbox"/> race 11 | <input type="checkbox"/> race 19 | <input type="checkbox"/> race 27  | <input type="checkbox"/> race 34 | <input type="checkbox"/> race 41 |
| <input type="checkbox"/> race 4            | <input type="checkbox"/> race 12 | <input type="checkbox"/> race 20 | <input type="checkbox"/> race 28  | <input type="checkbox"/> race 35 | <input type="checkbox"/> race 42 |
| <input type="checkbox"/> race 5            | <input type="checkbox"/> race 14 | <input type="checkbox"/> race 21 | <input type="checkbox"/> race 29  | <input type="checkbox"/> race 36 | <input type="checkbox"/> race 43 |
| <input type="checkbox"/> race 6            | <input type="checkbox"/> race 14 | <input type="checkbox"/> race 22 | <input type="checkbox"/> race 30  | <input type="checkbox"/> race 35 | <input type="checkbox"/> race 44 |
| <input type="checkbox"/> race 7            | <input type="checkbox"/> race 15 | <input type="checkbox"/> race 23 | <input type="checkbox"/> race 31  | <input type="checkbox"/> race 38 | <input type="checkbox"/> race 45 |
| <input type="checkbox"/> race 8            | <input type="checkbox"/> race 16 | <input type="checkbox"/> race 24 | <input type="checkbox"/> Important: Any other races tested (Please specify) _____ |                                  |                                  |

- ☐ Bud Blight (Tobacco Ringspot Virus)
- ☐ Yellow Mosaic (Bean Yellow Mosaic Virus)
- \* ☐ Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ Pod Mottle (Bean Pod Mottle Virus)
- \* ☐ Seed Mottle (Soybean Mosaic Virus)

Nematode

\*Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

- |  |                                 |   |
|--|---------------------------------|---|
| <input type="checkbox"/> race 1            | <input type="checkbox"/> race 4 | <input type="checkbox"/> race 9   |
| <input type="checkbox"/> race 2            | <input type="checkbox"/> race 5 | <input checked="" type="checkbox"/> race 14                                       |
| <input checked="" type="checkbox"/> race 3 | <input type="checkbox"/> race 6 | <input type="checkbox"/> Important: Any other races tested (Please specify) _____ |



**B. DISEASE REACTIONS:** (continued)

- ☐ Lance Nematode (*Hoplolaimus colxmbus* Sher)
- ☐ Southern Root Knot Nematode (*Meliodogyne incognita* (Kofoid & White) Chitwood)
- ☐ Northern Root Knot Nematode (*Meliodogyne hapla* Chitwood)
- ☐ Peanut Root Knot Nematode (*Meliodogyne arenaria* (Neal) Chitwood)
- ☐ Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)
- ☐ Javanese Nematode (*Meliodogyne javanica* (Treub) Chitwood)
- ☐ Important: Other Nematodes tested (Please specify) \_\_\_\_\_

**C. PHYSIOLOGICAL RESPONSES:** 0 = Not Tested    1 = Susceptible    2 = Resistant    3 = Tolerant

- ☐ Iron Chlorosis on Calcareous Soil
- ☐ Phosphorus ☐ Important: Other (Please specify) \_\_\_\_\_
- ☐ Boron
- ☐ Aluminum
- ☐ Salt
- ☐ Drought

**D. INSECT REACTIONS:** 0 = Not Tested    1 = Susceptible    2 = Resistant    3 = Tolerant

- ☐ Mexican Bean Beetle (*Epilachna varivestis* Mulsant)
- ☐ Soybean Aphid (*Aphis glycines* Matsamura)
- ☐ Potato Leaf Hopper (*Empoasca fabae* (Harris))
- ☐ Important: Other (Please specify) \_\_\_\_\_

**E. HERBICIDE REACTIONS:** 0 = Not Tested    1 = Susceptible    2 = Resistant    3 = Tolerant

- ☐ Metribuzin
- ☐ Bentazone
- ☐ Sulfonylurea
- \* ☐ 2 Glyphosate
- ☐ Glufosinate
- ☐ Pendimethalin
- ☐ Important: Other (Please specify) \_\_\_\_\_

**F. TRANSGENIC COMPOSITION:**

Has the development of the subject variety included the insertion of genetic material from an organism, other than a soybean, or, the removal of genetic material from the application variety?

If yes, please complete the following information requests\*. Use additional pages if necessary. ☐ Yes ☐ No

1. Please state the vector's name:
2. Please state the vector components:
3. Please describe the genetic material successfully transferred into the subject variety:
4. Please describe the insertion protocol:

\* A literature citation(s) explaining the your information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

**G. BIOCHEMICAL MARKERS:**

Please describe any additional genetic and/or biochemical information which you believe will be helpful in further describing the subject variety here (e.g., Single Nucleotide Polymorphisms (SNPs), Simple Sequence repeats (SSRs), Restriction Fragment Length Polymorphisms (RFLPs), Isozyme characterization, etc.). Use additional pages if necessary.

**H. STATISTICAL DATA FOR APPLICATION AND CITED MOST SIMILAR VARIETIES:**

Please provide paired comparison data and appropriate statistical test (e.g. LSD, Std. error, ANOVA, Mann-Whitney *U*-test or Kruskal-Wallis Test, etc.) value (95 or > probability level).

Variety	No. of days Maturity	Plant height (cm)	% Linoleic acid	% Oleic acid	% Linolenic acid	% Other fatty acids (specify)	% Total oil	% Protein (Plant dried down to ___%)
<u>Application Variety</u> Year/Location 1								
Year/Location 2								
<u>Cited Most Similar Variety</u> Year/Location 1								
Year/Location 2								

**I. COMMENTS:**

	<b>Trait</b>	<b>Location 1</b>	<b>Location 2</b>	<b>Location 3</b>
D4523081	Maturity	37	21.5	36.5
DKB38-52	Maturity	37.5	18.5	36
Coef of Variance	Maturity	3.26216	6.72686	2.439
F-Statistic	Maturity	5.47887	4.87903	6.67259
Least Sig Difference	Maturity	2.419	2.80637	1.77527
Mean Square Error	Maturity	1.20374	1.3965	0.88341
P-Value	Maturity	0	0	0
Repeatability	Maturity	0.81748	0.79504	0.85013
D4523081	Yield	110.36	115.8	106.14
DKB38-52	Yield	104.9	89.77	86.65
D4523081	Oil	20.1	22.6	20.8
DKB38-52	Oil	20.4	22.6	21.4
D4523081	Plant Height	44.5	40	42
DKB38-52	Plant Height	45	35	40.5
Coef of Variance	Plant Height	4.45685	4.4611	5.33533
F-Statistic	Plant Height	2.87486	3.09821	3.52716
Least Sig Difference	Plant Height	3.88527	3.4381	4.37233
Mean Square Error	Plant Height	1.93338	1.71172	2.17575
P-Value	Plant Height	0.00016	0.00005	0.00001
Repeatability	Plant Height	0.65216	0.67723	0.71649
D4523081	Protein	41.1	39.5	39.9
DKB38-52	Protein	40.9	40.5	39.3

**Exhibit D**  
**Additional Description of Invention**

**D4523081**

D4523081 is a mid to late maturity group III variety with resistance to Roundup Ready<sup>®</sup> herbicide. It has superior yields to lines of similar maturity and has excellent agronomic characteristics, such as such as such as resistance to *Phytophthora* root rot and to soybean cyst nematode. In tests, it has beaten AG3602 by 113% overall in yield, winning 76 of 81 locations.

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)  Monsanto Company	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME  D4523081
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  800 North Lindbergh E2SD St. Louis, MO 63167	5. TELEPHONE (Include area code)  314.694.2718	6. FAX (Include area code)  314.694.4888
7. PVPO NUMBER  <b>#200700415</b>		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional Explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owner by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provide and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

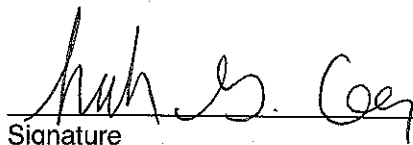
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**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705**

**EXHIBIT F  
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S)  Monsanto Company	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)  800 N Lindbergh Blvd, E2SD St. Louis, MO 63167	TEMPORARY OR EXPERIMENTAL DESIGNATION  VARIETY NAME D4523081
NAME OF OWNER REPRESENTATIVE (S)  Susannah Cooper	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)  800 N Lindbergh Blvd, E2SD St. Louis, MO 63167	FOR OFFICIAL USE ONLY  PVPO NUMBER <b>#200700415</b>

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished at needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

  
Signature

17 - Aug - 2007  
Date